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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,792	10/22/1999	CHIORI MOCHIZUKI	35.G2482	6000
5514	7590	04/14/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			YE, LIN	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/422,792

Applicant(s)

MOCHIZUKI, CHIORI

Examiner

Lin Ye

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-30, 52 and 53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30, 52 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's amendments with respect to claims 1-30, 52 and 53 filed on 11/24/2004 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 9, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Kobayashi et al. U.S. Patent 5,793,047.

Referring to claim 1, the Possin reference discloses in Figures 1-2, an image pick-up apparatus (computed topography imager apparatus 100 for detection of x-ray, see Col. 3, lines 44-46) comprising a wavelength converter (scintillator 110, see Col. 3, lines 42-44) for converting an incident radiation (x-ray radiation) to a light having a wavelength detectable by a photoelectric conversion element on a sensor substrate (photo sensor array block 130 includes a substrate 138, see Col. 3, lines 61-63 and Col. 4, lines 24-25) on which plural photoelectric conversion elements (a plurality of photosensor devices 124) and switching elements (switching elements 140, see Col. 6, lines 35-52) are disposed, wherein the

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wavelength converter (110) is deposited on a flattening layer (optical coupling layer 170, see Col. 3, lines 65-67), and wherein the plural photoelectric conversion elements (124), the plural switching elements (140), and the flattening layer (170) are situated between the sensor substrate (138) and wavelength converter (110) as shown in Figure 1. However, the Possin reference does not explicitly shows the sensor substrate (138) can be an insulating substrate instead of electrically conductive substrate.

The Kobayashi reference teaches in Figures 13-14A and 26, a photoelectric conversion apparatus comprises a plurality of transparent substrates, including wavelength converter (phosphors 34) and photoelectric conversion apparatus (36, see Col. 13, lines 55-63); wherein photoelectric conversion elements 4 are mounted on an insulating substrate (glass substrates 1) are to be bonded in the base 2 as shown in Figure 15A (See Col. 14, lines 34-37); and in Figure 26, all substrates are bonded to on large substrate (80) which either is an insulating substrate (glass substrate) or electrically conductive substrate (copper plate) (See Col. 20, lines 4-8). The Kobayashi reference is evidence that one of ordinary skill in the art at the time to see more advantages for the system has more flexible option to use either insulating material or electrically conductive material for a base substrate of image sensor so that all pixel elements in the image sensor can be completely protected and separated from each other. For that reason, it would have been obvious one of ordinary skill in the art at the time to modify the image pick-up apparatus of Possin ('298) for providing an insulating substrate for the sensor substrate as taught by Kobayashi ('047).

Referring to claim 2, the Possin and Kobayashi references disclose all subject matter as discussed in respected claim 1, and the Possin reference discloses wherein the flattening layer

(170) is obtained by flattening a protective layer provided on the sensor substrate ((substrate 138 can be insulating substrate as taught by Kobayashi reference)) as shown in Figure 1.

Referring to claim 3, the Possin and Kobayashi references disclose all subject matter as discussed in respected claim 1, and the Possin reference discloses wherein flattening layer (170) is provided on a protective layer (optical coupling layer) on the sensor substrate (substrate 138 can be insulating substrate as taught by Kobayashi reference) included in sensor array block 130) as shown in Figure 1.

Referring to claim 9, the Possin and Kobayashi references disclose all subject matter as discussed in respected claim 1, and the Possin reference discloses wherein the wavelength converter (scintillator 110) comprises a scintillator (See Col. 3, lines 42-45).

Referring to claim 15, the Possin reference discloses all subject matter as discussed with respected to same comment as with claim 1.

Referring to claim 19, the Possin and Kobayashi references disclose all subject matter as discussed in respected to same comment as with claim 9.

4. Claims 4-8, 12-14, 16-18, 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Kobayashi et al. U.S. Patent 5,793,047 and Majewski et al. U.S. Patent 6,271,525.

Referring to claims 4 and 6, the Possin and Kobayashi references disclose all subject matter as discussed in respected claim 1, except the references do not explicitly show a second flattening layer is provided on the wavelength converter so the wavelength converter is flattened.

The Majewski reference discloses in Figures 1-4, an image pick-up apparatus comprising a wavelength converter (scintillator layer 12) for converting an incident radiation (gamma radiation); a flattening layer (bonding/protective layer 40, see Col. 3, lines 46-55) is provided on the wavelength converter (12). The Majewski reference is evidence that one of ordinary skill in the art at the time to see more advantages for an image pick-up apparatus comprising a flattening layer that is provided on the wavelength converter so that serving to cushion or protect the friable wavelength converter layer (12) from physical damage through shock (See Col. 3, lines 38-41). For that reason, it would have been obvious one of ordinary skill in the art at the time to modify the image pickup apparatus of Possin ('298) for providing the second flattening layer on the wavelength converter so the wavelength converter is flattened as taught by Majewski ('525).

Referring to claim 5, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected claims 4 and 6, and the Majewski reference discloses wherein the second flattening layer (40) covers the end face of the wavelength converter as shown in Figure 1.

Referring to claim 7, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected claims 4 and 6, and the Majewski reference discloses wherein a light reflection film (a thin foil of aluminum layer 36) is provided on the second flattening layer (See Col. 3, lines 23-25).

Referring to claim 8, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected claim 4 and 6, and the Majewski reference discloses

wherein a light reflection film (36) is provided on the flattened wavelength converter (12) as shown in Figure 1.

Referring to claim 12, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected claim 7, and the Majewski reference discloses wherein the light reflection film (a thin foil of aluminum layer 36) is made of an aluminum film.

Referring to claim 13, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to same comment as with claims 8 and 12.

Referring to claim 14, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected claim 8, and the Possin reference discloses having plural sensor substrates (a plurality of photosensor devices 124 disposed on the layer 138 included in the sensor array block 130 in Figure 1).

Referring to claim 16, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to same comment as with claim 4.

Referring to claim 17, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to same comment as with 5.

Referring to claim 18, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to same comment as with 7.

Referring to claim 22, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to same comment as with 12.

Referring to claim 23, the Possin and Kobayashi references disclose all subject matter as discussed in respected to same comment as with claim 1, except the references do not

explicitly show a signal processing means for processing the signal from the image pick-up apparatus, and display means for displaying the signal from the signal processing means.

The Majewski reference discloses a signal processing means for processing the signal (digitizer 18 digitizes the output of array 16) from the image pick-up apparatus; and a display means for displaying the signal from the signal processing means as shown in Figure 4 (See Col. 2., lines 55-65). The Majewski reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image pick-up system including a signal processor for processing the signal from the image pick-up apparatus and a display means for displaying the signal from the signal processing so that user can review captured image from the display immediately. For that reason, it would have been obvious one of ordinary skill in the art at the time to modify the image pickup apparatus of Possin ('298) for providing the signal processing means for processing the signal from the image pick-up apparatus and display means for displaying the signal from the signal processing means as taught by Majewski ('525).

Referring to claim 24, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respect to claim 23, and the Majewski reference discloses a telecommunication means for transferring the signal from the signal processing means (See Col. 2, lines 64-65).

Referring to claim 25, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respect to claim 23, and the Majewski reference discloses a recording means for recording the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18).



Referring to claim 26, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed in respected to claim 23, and the Majewski reference discloses a storage means for storing the signal from the signal processing means (computer 20 inherently has a storage means that recoding the signal output from digitizer 18 and transfer data to remote location).

Referring to claim 27, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 23.

Referring to claim 28, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 25.

Referring to claim 29, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 24.

Referring to claim 30, the Possin, Kobayashi and Majewski references disclose all subject matter as discussed with respected to same comment as with claim 26.

5. Claims 10-11 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Kobayashi et al. U.S. Patent 5,793,047 and Lubowski et al. U.S. Patent 4,011,454.

Referring to claims 10-11, the Possin and Kobayashi references disclose all subject matter as discussed in respected claims 1 and 9, except the references do not explicitly show a detail about the scintillator (110) comprises a columnar CsI columnar crystal.

The Lubowski reference discloses in Figures 1-3, an x-ray image intensifier comprising a structured scintillator screen produced by a vacuum evaporation process in which Cesium

iodide (CsI) is evaporated from a source boat and deposited on a topographically structured surface to produce columnar scintillator elements (See Abstract section). The Lubowski reference is evidence that one of ordinary skill in the art at the time to see more advantages for the scintillator has a CsI columnar crystal so that to increase the proportion of light photons generated which leaves the upper surface when the column is thought of as extending up from the substrate (See Col. 2, lines 5-20). For that reason, it would have been obvious one of ordinary skill in the art at the time to see the scintillator (110) comprises a columnar CsI columnar crystal disclosed by Possin ('298).

Referring to claims 20-21, the Possin, Kobayashi and Lubowski references disclose all subject matter as discussed with respected to same comment as with claims 10-11.

6. Claims 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin et al. U.S. Patent 5,430,298 in view of Kobayashi et al. U.S. Patent 5,793,047 and Yamazaki et al. U.S. Patent 5,700,333.

Referring to claims 52-53, the Possin and Kobayashi references disclose all subject matter as discussed in respected to claim 1, except the reference does not explicitly state the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc.

The Yamazaki reference discloses in Figure 1A, a thin-film photoelectric conversion device comprise non-single crystalline semiconductor material (see Col. 3, lines 30-35), such as a amorphous silicon film (103), a silicon oxide film (102) and glass substrate (101) as an underlying layer (See col. 4, lines 26-42). The Yamazaki reference is evidence that one of ordinary skill in the art at the time to see more advantages photoelectric conversion elements

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comprise non-single crystalline semiconductor so as forming an excellent photoelectric conversion characteristic. For that reason, it would have been obvious one of ordinary skill in the art at the time to see the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc., disclosed by Possin ('298).

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - a. Yamada et al. U.S 5,463,420 discloses a photosensor formed on an insulating substrate.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

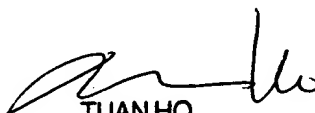
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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Groody can be reached on (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TUAN HO  
PRIMARY EXAMINER

Lin Ye  
April 6, 2005